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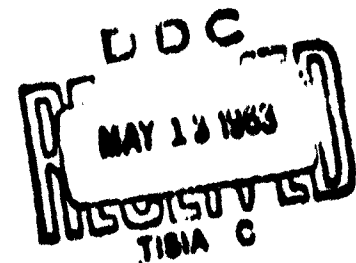
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ABSTRACTS FROM EAST EUROPEAN  
SCIENTIFIC AND TECHNICAL JOURNALS

No. 134

(Electronics, Engineering, and Space Research Series)

404 933



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# ABSTRACTS FROM EAST EUROPEAN SCIENTIFIC AND TECHNICAL JOURNALS

No. 134

- Electronics, Engineering, and Space Research Series -

This report consists of abstracts of articles from the East European scientific and technical journals listed in the table of contents below.

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<u>Bulletin de l'Academie Polonaise des Sciences, Serie des Sciences Techniquess, Warsaw, Vol 10, No 12, 62</u>	19

**EAST GERMANY**

NIESE Herbert, Dr.-Engr., Institute of Structural and Electro-Acoustics at the Technical University (Institut fuer Elektro- und Bauakustik der Technischen Universitaet), Dresden.

"The Intensity of Noises and Its Approximate Determination through Measurement and Calculation Methods".

Leipzig, Hochfrequenztechnik und Elektroakustik Vol 72, No 1 February 1965; pp 5-14.

**Abstract** [Author's German summary]: The effectiveness of the various noise intensity evaluation methods is tested by applying the well known principle, according to which the sound intensity of a complex noise is made up of three components. The accuracy of each of these methods is determined on the basis of experimental results obtained from intensity measurements on uniform noises of noise. It is found, that "sound-level meter" tests and the use of "noise-rating curves" yield considerably low values, while the procedures according to STB-VIII, KNYTER, ZWICKER and NIESE give results close within measurement accuracy to those obtained by subjective measurements. Eighteen references listed: 14 German and 4 American. 1/1

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**EAST GERMANY**

JAHN Gerhard, Dr.-Engr., Institute of Structural and Electro-Acoustics at the Technical University (Institut fuer Elektro- und Bauakustik der Technischen Universitaet), Dresden.

"On the Difference between Mono-Aural and Bi-Aural Hearing".

Leipzig, Hochfrequenztechnik und Elektroakustik Vol 72, No 1 February 1965; pp 15-20.

**Abstract** [Author's German summary]: The theorem is tested, according to which the sound components entering each ear are combined into a resultant hearing sensation. These bi-aural tests are described. Test procedures and comparative monaural-binaural measurements as well as monaural and binaural hearing threshold measurements are explained in detail. Results show that the hearing system approximately adds up the sound power of both its components. One possible useful application of these findings is the derivation of directivity curves for binaural hearing on the basis of monaural hearing characteristics.

Seventeen bibliographic references are listed: eight German, two French and seven American. 1/1

EAST GERMANY

FRUKHAUS Two, Grad. Eng., Institute of Electron Tubes and High-Frequency Technology at the Technical University (Institut für Hochfrequenztechnik und Elektronenrohren der T U), Dresden.

"On the Mode Transformation of the  $H_{01}$ -Wave in a Deformed Round Waveguide".

Leipzig, Hochfrequenztechnik und Elektrotechnik Vol 72, No 1 February 1965, pp 21-25.

**Abstract** [Author's German summary]: The distortion modes are examined which appear with the  $H_{01}$ -wave in a round waveguide when the latter deviates from an exactly circular cross-section and this deviation is maintained throughout the length of the waveguide. Elliptical waveguides are examined first more closely and the field components of the  $H_{01}$ -wave here are calculated. The  $H_z$ -component of the  $H_{01}$ -wave is expressed in form of a series; thus, for small deviations from roundness, it can be determined which wave modes will appear as distortion modes in an elliptical waveguide. These findings can be then extended to triangular and other types of waveguide deformations. In conclusion, the eigenfunctions and their parameters with resulting field plots are determined for elliptical and triangular waveguides. Thirteen bibliographic references are listed: two German, two Russian, four British, four American and one Danish.

EAST GERMANY

Leipzig, Hochfrequenztechnik und Elektrotechnik Vol 72, No 1 February 1965, pp 21-25.

guide deformations. In conclusion, the eigenfunctions and their parameters with resulting field plots are determined for elliptical and triangular waveguides. Thirteen bibliographic references are listed: two German, two Russian, four British, four American and one Danish.

EAST GERMANY

KODE Helmut, Grad. Engr. and SEANGE Rudolf, Grad. Engr.  
Institute of Electron Tubes and High-Frequency Technology  
at the Technical University (Institut fuer Hochfrequenz-  
technik und Elektronenroehren der Technischen Universitaet),  
Dresden.

"A DOPPLER Radar for Additional Determination of the Direction  
of Velocity".

Leipzig, Hochfrequenztechnik und Elektroakustik Vol 72, No 1  
February 1963; pp 25-31.

Abstract [Authors' German summary]: Methods are being examin-  
ed which utilize the DOPPLER effect for the measurement of  
velocity in regard to magnitude and direction. Two procedures,  
well known in the literature, are outlined in way of an intro-  
duction; their usefulness is very limited because of expensive  
high-frequency components. Consequently, two new methods are  
derived which require a minimum expense for the h-f component.  
However, the simplification of the h-f component is attained  
at the cost of a more expensive low-frequency indicating com-  
ponent. The advantages and disadvantages of the new methods  
12/2

EAST GERMANY

Leipzig, Hochfrequenztechnik und Elektroakustik Vol 72, No 1  
February 1963; pp 25-31.

and the feasibility of their application are discussed. The  
principle of the solution to the low-frequency problem is  
given.

Five bibliographic references are listed: three German, one  
Swiss and one American.

EAST GERMANY

KRAAK, W. [affiliation not given]

"Professor Dr Ingr Walter REICHARDT Is Sixty."

Leipzig, Hochfrequenztechnik und Elektroakustik, Vol 72, No 1, Feb 63,  
pp 1-2.

**Abstract:** Biographic and bibliographic information on REICHARDT, director of the Institute of Electronic and Construction Acoustics at Dresden Technical University (Institut für Elektro- und Bauakustik der Technischen Hochschule Dresden). Contains some information also on the staff, equipment, and research work of this institute. No references.

1/1

EAST GERMANY

STILLER, H.; Economic advisor (Volkswirtschaftler) of East Germany, Department of Machine Tools and Automation (Abteilung Werkzeugmaschinen und Automatisierung), Berlin

"Development of Measuring, Controlling and Regulating Techniques in East Germany."

Berlin, Maschinen-Steuerung-Regeln, Vol 6, No 2, Feb 63, pp 45-46.

**Abstract:** Brief review of the importance of automation, the present state of the art, the 1963 program, international cooperation, and of the plans after 1963. No references.

1/1

**EAST GERMANY**

BOWKA W., People's Enterprise Instruments - and Regulators Works (VEB Geräte- und Regler-Werke), Teltow.

"Electromechanical Computing Device of the "UGB"- System".

Berlin, Messen-Steuern-Regeln Vol 6, No 2, February 1963  
pp 51-52.

**Abstract:** The article describes the theoretical principles and the circuitry of an electromechanical computer which can add, subtract, multiply, divide, square and extract square roots. This device is being built in three different models and a maximum of five input functions can be operated on. The equipment is insensitive to fluctuations of voltage, frequency or temperature. Operating diagrams and technical data are given. No references.

1/1

**EAST GERMANY**

RUEDIGER W., People's Enterprise Instruments- and Regulators Works (VEB Geräte- und Regler-Werke), Teltow.

"Constant-Voltage Source with Inherent Output Protection."

Berlin, Messen-Steuern-Regeln Vol 6, No 2, February 1963  
pp 52-53.

**Abstract:** The article describes a constant-voltage source device which has built in a special feature, namely inherent protection at the output. The equipment is made explosion-proof by means of a temperature-sensing servo loop. One East German reference.

1/1

**[PART SUMMARY]**

LOEWA J., People's Enterprise Instruments- and Regulators Works (VEB Geräte- und Regler-Werke), Teltow.

"The Tg- Amplifier Device - A Magnetic Amplifier for Thermo-Voltages".

Berlin, Leben-Steuer-Regeln Vol 6, No 2, February 1963  
pp 53-54.

**Abstract:** The article presents technical data such as operating ranges and performance parameters of a magnetic amplifier for thermo-voltage input signals. Its rating is 15 voltamperes and it has four voltage ranges, the highest  $0... \pm 32$  millivolts ( $\pm 48$  millivolts reference). Output impedance is 100 ohms and output current is  $0... \pm 20$  milliamperes. No references.

11/1

**[PART SUMMARY]**

RAUMER-GEORG H., People's Enterprise (VEB) Intron, Leipzig.

"The Electronic Voltage Regulator RU 12/" for Punch-Card Machines".

Berlin, Leben-Steuer-Regeln Vol 6, No 2, February 1963  
pp 54-55.

**Abstract:** The article describes the construction and the principle of operation of an electronic voltage regulator for punch-card machines. It consists of a power circuit which rectifies three-phase line voltage by means of a grid-controlled mercury-arc rectifier, and a regulating circuit which controls the d.c. output voltage. Technical data and dimensions of the device are given. No references.

11/1

7  
[EAST GERMANY

NAGEL L., People's Enterprise (VEB) Intren, Leipzig.

"Magnetic Drive-Regulator".

Berlin, Maschinen-Steuerung-Maschinen Vol 6, No 2, February 1963  
pp 55-56.

**Abstract:** The article describes a magnetic motor-speed regulating servomechanism. The speed is controlled through the shunt field voltage. The components of the regulator include a tachometer, a preamplifier, a voltage reference and feedback circuit elements. The operation, nameplate data, dimensions are all given and application to generator voltage control is discussed. No references.

L1/1

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[EAST GERMANY

NILBE P., People's Enterprise (VEB) Intren, Leipzig.

"Test-Point Transfer Switch for Capacitance Method of Fluid Level Measurement".

Berlin, Maschinen-Steuerung-Maschinen Vol 6, No 2, February 1963  
p 56.

**Abstract:** The article describes the construction of a capacitive fluid level measuring device which is particularly adapted for the ship building industry. No references.

L1/1

**EAST GERMANY**

**BUEKING M., People's Enterprise (VEB) Intron, Leipzig.**

**"The Electronic Switching Device ES 7".**

**Berlin, Messen-Steuern-Regeln Vol 6, No 2, February 1963  
p 57.**

**Abstract:** The article describes the principle of a photo-sensitive electronic switch used in control circuits. Construction details and technical data are also given. No references.

2/1

**EAST GERMANY**

**PODBIELSKI M., People's Enterprise (VEB) Intron, Leipzig.**

**"Switching Amplifier for Flame Control, SV2".**

**Berlin, Messen-Steuern-Regeln Vol 6, No 2, February 1963  
pp 57-58.**

**Abstract:** The article describes a switch-type amplifier for flame control and explosion safety in furnaces. The device contains a photosensitive element and printed circuitry. It can be used in conjunction with alarm signals or control programs. No references.

2/1

**EAST GERMANY**

**EURKHARDT U.**, People's Enterprise Measuring Instruments and Armatures Works (VEB Messgerate- und Armaturenwerk) "Karl Marx", Magdeburg.

"Drive-Motor Compensators".

Berlin, ~~Mechanisch-Steuerung-Regeln~~ Vol 6, No 2, February 1963  
pp 58-60.

**Abstract:** The article describes two types of motor compensators, an indicating type and a recording type. They are both built with electronic components, tubes or transistors. The need for this equipment in the manufacturing industry is discussed and its important design features are presented. Small size and high accuracy are emphasized, other performance data and construction details are also given. No references.

1/1

**EAST GERMANY**

**SCHOLZ W.**, People's Enterprise Measuring Instruments and Armatures Works (VEB Messgerate- und Armaturenwerk) "Karl Marx", Magdeburg.

"A New Flow Measuring Device".

Berlin, ~~Mechanisch-Steuerung-Regeln~~ Vol 6, No 2, February 1963  
pp 60-61.

**Abstract:** The article describes a new device for measuring fluid flow. It operates on the magnetic coupling principle and its characteristics are compared with those of the mercury-float type instrument. Construction details and performance ranges are given. No references.

1/1

EAST GERMANY

BRITTSCHNEIDER P. W. and KIRCHHIL K., People's Enterprise  
Plant for Signals- and Posing Technology (VEB Werk fuer  
Signal- und Sicherungstechnik), Berlin.

"New Devices for Railroad-Signal Technology and Industrial  
Control".

Berlin, ~~Maschinen-Elektromechanik~~ Vol 6, No 2, February 1963  
pp 63-66.

**Abstract:** The article describes the construction and layout  
of new railroad and industrial control equipment, also its  
function and its capability.  
Four bibliographic references are listed, all East German.

11/1

EAST GERMANY

SCHROEDER H., People's Enterprise (VEB) Metron, Weide.

"Building-Block System for Small Electronic Devices",  
"Electronic Timing Component EB 2" and "Magnet-Microswitch  
VMS 2".

Berlin, ~~Maschinen-Elektromechanik~~ Vol 6, No 2, February 1963  
pp 61-63.

**Abstract:** The article describes three new pieces of equip-  
ment: 1) modules for small electronic components built in  
standardized sizes and colors, 2) an electronic timing com-  
ponent for adjustable delay times, and 3) a magnetic micro-  
switch which is totally enclosed and gas filled. Outstanding  
features and characteristics are stated and technical data  
given. No references.

11/1

**EAST GERMANY**

**REHFELDE**, People's Enterprise Electric Apparatus Works (VEB Elektro-Apparate-Werke), Berlin-Dropow.

"The Contactless Control System TRANSLOC".

Berlin, Maschinen-Handbuch Vol 6, No 2, February 1963  
pp 64-66.

**Abstract:** The article describes the construction and operation of the contactless control system TRANSLOC and of its components. Possibilities for future development and expansion of this system are discussed. No references.

1/1

**EAST GERMANY**

**WEISSBACH S.**, People's Enterprise Clock Drives (VEB Uhrenbetriebe), Glashütte.

"Recording Tape Reel Drive with Drive Gear for 144x144 mm Casings"

Berlin, Maschinen-Handbuch Vol 6, No 2, February 1963  
pp 66-67.

**Abstract:** The article gives technical data of a recording tape reel drive designed for use in a 144x144 millimeter casing which is a widely used size. The reel can be driven by a synchronous motor directly or through speed changing gears, also by a wound spring directly or through gears. It is possible to couple the reel to an external drive. No references.

1/1

**EAST GERMANY**

**JOEPPER J., People's Enterprise Clock Drives (VEM Uhrantriebe), Glashütte.**

**"Standardized Drum Recorder according to Specification TGL 9170".**

**Berlin, Messen-Steuern-Regeln Vol 6, No2, February 1963  
p 67.**

**Abstract:** The article describes the construction and application of a drum recorder which meets the specifications of TGL 9170 and therefore is well suitable for prolonged weather conditions. No references.

L1/1

**EAST GERMANY**

**BERG G.F., People's Enterprise Hydraulics (VEM Hydraulik), Leipzig.**

**"Hydraulic Remote-Control Drives with Electric Control and Regulation".**

**Berlin, Messen-Steuern-Regeln Vol 6, No 2, February 1963  
pp 68-70.**

**Abstract:** The article describes a hydraulic remote-control apparatus with stepless speed adjustment. This device was exhibited at the 1963 Leipzig Fair. The construction and the operation of three types of system control is shown: Azee-for, Azee-tren and Azee-mat. No references.

L1/1

EAST GERMANY

MEYER, Mercedes Office-Machines Werke Tho.. Zella-Mehlis.  
"The Cellatron SBR 2".

Berlin, ~~Maschin-Steuer-Regeln~~ Vol 6, No 2, February 1963  
pp 70-72.

Abstract: The article describes the construction and operation of a small desk type electronic computing machine which is a program-controlled device. A block diagram and explanation of its components are given. No references.

1/1

EAST GERMANY

SCHONZ W., People's Enterprise (VEB) Valutronik, Dresden.  
"Measuring Instruments for Nuclear Physics".

Berlin, ~~Maschin-Steuer-Regeln~~ Vol 6, No 2, February 1963  
pp 72-73.

Abstract: The article describes some recently developed measuring instruments used for nuclear physics. Among them are an alpha-counter, a swinging-capacitor electrometer, an X-ray-gamma dosimeter and a few other models. No references.

1/1

**EAST GERMANY**

**RYLA H.,** Engr., People's Enterprise Instruments- and Regulator Works (VEB Geräte- und Regler Werke), Teltow/Berlin

"Automatic Cycling in a Pressurized-Washing and After-Treatment Plant".

Berlin, Maschinen-Steuerung-Regeln Vol 6, No 2, February 1963  
pp 74-80.

**Abstract:** The article describes the automatization of the wash process in a rayon manufacturing plant. First, the pressurized-washing and after-treatment process is explained and outlined. Next, the design and the layout of the automatic system are presented. This system consists of computer devices and low-pressure pneumatic components. Block diagrams accompany the explanation of their function and illustrate how they operate. Provisions are made for manual control of the whole process, in case the automatic system fails. Two East German bibliographic references are listed.

1/1

**EAST GERMANY**

**HIENTZSCH H.,** Grad. Engr. [affiliation not given]

"The Measuring-, Control- and Regulation Technology for Plant-Operation at the Fourth International Fair 1962 in Brno (Czechoslovakia)".

Berlin, Maschinen-Steuerung-Regeln Vol 6, No 2, February 1963  
pp 81-85.

**Abstract:** The article describes the more interesting pieces of new measuring and regulating equipment exhibited at the 1962 Fair in Brno. Latest developments in construction and design are stressed and special attention is given to their possible utilization in East German industries. No references.

1/1

**EAST GERMANY**

**BEYDEL M.,** Eng., People's Publication in Berlin Regulation Technology, Apparatus Design and Optics (VVB Regelungstechnik, Geratetechnik und Optik), Berlin.

"The Electronic Branch ("EAUS") of the Soviet Unit System ("AUS")."

Berlin, Leason-Sigurn-Heads Vol 6, No 2, February 1963  
pp 83-86.

**Abstract:** The article describes all the electronic components of the Soviet Unit System, which includes the following types of equipment: 1) meters and transmitters, 2) transducers with electrical output, 3) secondary apparatus, 4) computing and programming devices, 5) electric-to-pneumatic transducers. Some components are not included in this survey and the development of numerous devices for the operation of the system is not yet complete.

This article is based on Russian sources which have been translated and supplemented by the author.

L2/1

**EAST GERMANY**

**BIRH H.,** Grad. Phys., Department of Ship Building and Institute of Engineering Thermodynamics, Rostock University (Schiffbautechnische Fakultät, Institut fuer Technische Thermodynamik, Universitaet Rostock), Rostock.

"Survey of the Most Recent Published Works in the Field of Temperature Metrology".

Berlin, Leason-Sigurn-Heads Vol 6, No 2, February 1963  
pp 87-91.

**Abstract:** The article deals with latest temperature measurement devices and methods. Included are here: 1) resistance thermometers (metallic, semiconductor, thermistors), 2) thermoelements, 3) pyrometer, and 4) special methods (acoustic, noise, quartz crystal, pneumatic, viscosity, rotating waves). Also time constants, special measurement problems and thermostats are discussed.

Hundred and forty bibliographic references are listed: 81 English-language (American, British and Commonwealth), 3 Japanese, 19 Russian, 2 Polish, 1 Dutch, 1 Swiss and 3 German.

E. MAATY

MAQYANI, Andre, Ph. D., [affiliation not given].

"A New Research Concept: Force and Power Transmission by Penetration"

Budapest, Finomechanika, Vol 2, No 2, Feb 1963, pp. 33-41

Abstract: [Author's English summary] Particle penetration phenomena furnish a means for explaining the nature of gravitation; the concept also leads to new pathways in the field of physics and dynamics; thermodynamics, electromagnetism, hydrostatics, inertia, etc. The theory was verified experimentally during the solar eclipse 15 Feb 1961, at which time the deflection of the 314-meter transmitting antenna tower at Lakibegy (near Budapest) was determined and measured. No references.

1/1

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HUTVADAR

KUZICKA, Gyongy, mechanical engineer, at the Hungarian Optical Works (Magyar Optikai Művek), [location not given].

"Center-Adjusting of Optical Components in Production" Part 2.

Budapest, Finomechanika, Vol 2, No 2, Feb 1963, pp. 43-46.

Abstract: [Author's English summary] The methods, problems, and development of center adjusting in the optical component parts industry are discussed. There are two ways to align the geometrical and optical axis, viz., (a) on the basis of the image produced by the lens or of the transmitted light (optical method) and (b) on the basis of zones of identical thickness which are arranged concentrically around the optical axis (mechanical method). A comprehensive survey of the various methods for center adjusting in optical parts production is presented. Three references, including 1 Russian, 1 German, and 1 Hungarian.

1/1

HUNGARY

TOTH, Lajos, of the Telephone Works (Telefongyar) [location not given].

"The Efficiency of Technological Development and Its Evaluation"

Budapest, Finomechanika, Vol 2, No 2, Feb 1963, pp. 47-50.

Abstract: [Author's English summary] The methods of developing production technology are not yet mature, the evaluation of its efficiency is not clear-cut, and there are contradictions affecting the work unfavorably. The most effective method of developing technology is when the most modern production methods are coordinated with the design of the product manufactured. This method, however, is not widely used today. Production technology should also be improved during the production run itself, especially in the case of long runs. To measure efficiency more accurately and realistically, the classifications of the design should be supplemented by a technological classification reflecting production as well. No references.

1/1

HUNGARY

BURAI, Ferenc [affiliation not given].

"Research and Standardisation"

Budapest, Finomechanika, Vol 2, No 2, Feb 1963, pp. 55-56.

Abstract: [Author's English summary] The functions of research institutes in the field of standardization were reviewed. The freedom of research workers is restricted to a predetermined level by standardization. However, since standards have an important effect, good research achievements are characterized by a consistent adherence to and application of the appropriate standards in industrial production. Three references to Hungarian publications.

1/1

HUNGARY

PALL, Andras, of the Central Program Group for Communications Technology (Közlekedéstechnikai Központi Program Csoport) [location not given].

"Organizational Forms in Modern Technology and Production"

Budapest, Finansztechnika, Vol 2, No 2, Feb 1963, pp. 51-54.

Abstract: [Author's English summary] In the work of factories the technical preparation of production has an ever-increasing function. Economical and up-to-date production requires a modern technological organization. A method for such organization is described which has as its aim to ensure a more economical and more up-to-date production. Two references to Hungarian publications.

1/1

HUNGARY

WALTER, Károly, of the Hungarian Optical Works (Magyar Optikai Művek) [location not given].

"Fine-Polishing in the Optical Industry" Part 2.

Budapest, Finansztechnika, Vol 2, No 2, Feb 1963, pp. 57-62.

Abstract: The published literature in general and Hungarian and German standards in particular, pertaining to surface polishing of glass for optical purposes was reviewed. Discussed was surface unevenness in crude glass and its influence in selecting the polishing method; surface regularity in polished glass surfaces; examples of practical application of the various procedures, and problems on which further research is desirable. No references.

1/1

**[POLAND]**

NOWACKI W., Department of Mechanics of Continuous Media,  
Institute of Fundamental Technical Problems at the Polish  
Academy of Sciences (Zaklad Mechaniki Orodkow Ciaglych,  
Instytut Podstawowych Problemow Techniki, PAN).

"Two-Dimensional Problem of Magnetoelastostaticity" Part I.

Warsaw, Bulletin de l'Academie Polonaise des Sciences, Serie  
des Sciences Techniques Vol X, No 12, 1962; pp 485-493.

**Abstract** [English article; author's Russian summary, modified]:

The article derives general equations for the stress and the strain tensors in a thermoelastic medium which has a constant magnetic field, is isotropic and homogeneous, and has perfect electric conductivity. These equations are discussed for the two-dimensional case (displacements, forces and heat sources independent of one of the three rectangular coordinates) and solved for two specific examples: a steady linearly distributed heat source and a harmonically varying surface distributed heat source.

Six bibliographic references are listed: two Polish and three English.

1/1

**[POLAND]**

LACASSE J., GIRALT G., SEVELY Y., VIDAL P.,  
Laboratoire de Genie Electrique de l'Universite de Toulouse  
(Electrical Engineering Laboratory of the Toulouse Univer-  
sity), Toulouse-France.

"On the Dynamics of a Regulating Loop with Controlled  
Rectifiers for a Direct Current Supply".

Warsaw, Bulletin de l'Academie Polonaise des Sciences, Serie  
des Sciences Techniques Vol X, No 12, 1962; pp 55-71.

**Abstract** [French article; author's Russian summary, modified]:

The authors have developed the equivalent circuit of an element consisting of controlled rectifiers and a filter with inductance input. The purpose is to determine the conditions for direct-current stability of such a system when operating with a feedback regulator and also to determine its transfer function and response to sudden current changes or pulses. Three bibliographic references are listed: two French and one English.

1/1

**POLAND**

SALUSTROWICZ A., Research Center for the Mechanics of Rock Masses at Polish Academy of Sciences (Zakład Mechaniki Górotworu, PAN), Krakow.

"The Stress Field about an Excavation in a Physically Non-Linear Elastic Rock Mass".

Warsaw, Bulletin de l'Académie Polonaise des Sciences, Série des Sciences Techniques Vol X, No 12, 1962, pp 57-60.

Abstract [English article; author's Russian summary, modified]: The article presents the solution to the problem of finding the magnitude and distribution of stresses around a circular excavation in a non-linear elastic mass of rock. Three types of rock are considered: 1) linear (constant YOUNG modulus), like coal; 2) YOUNG modulus decreasing with load; 3) YOUNG modulus increasing with load. The stress-strain relation is assumed in the form

$$\sigma = B_0 + B_1 \epsilon^2$$

and is solved for the two non-linear cases. The deviation from the linear case is found to be 20% at most.

Two bibliographic references are listed: one Polish and one Russian. 1/2

**POLAND**

LIU XI-SONG, Research Center for the Mechanics of Rock Masses at the Polish Academy of Sciences (Zakład Mechaniki Górotworu PAN), Krakow.

"An Electric Model of the Filtration Phenomenon in Conical Pumps".

Warsaw, Bulletin de l'Académie Polonaise des Sciences, Série des Sciences Techniques Vol X, No 12, 1962, pp 61-66.

Abstract [English article; author's Russian summary, modified]: The article deals with the examination of air pressure inside a cone of porous substance, when the air pressure over the surface is known and an additional source of pressure is located at the center of the base. The air pressure distribution in the cone is found by considering a three-dimensional flow problem and an electrical analog, namely current passing through an electrolyte in a conical container. Three bibliographic references are listed: one Polish, one Russian and one Chinese.

**POLAND**

KARWOWSKI J., Institute of Hydraulic Engineering at the Polish Academy of Sciences (Instytut Budownictwa Wodnego PAN), Gdansk.

"Errors in the Measurement of Surface Sea Currents by Means of Current Meters".

Warsaw, Bulletin de l'Academie Polonaise des Sciences, Serie des Sciences Techniques Vol X, No 12, 1962; pp 67-77.

**Abstract** [English article; author's Russian summary, modified]. The article describes the principle and the construction of several types of current meters which fall into two groups: 1) those equipped with propellers, and 2) those without propellers. It is shown here, that the second group is unsuitable for measurements in undulating water. As to the first group, their readings are influenced by undulation of water. The error depends on the depth, on wave parameters and ship dimensions; they must all be known while measurements are made. Also the effect of long-period waves should be established and the current meter must be affixed rigidly to the ship body. Two references are listed: one Polish, one Russian. 2/1

**POLAND**

KARWOWSKI J., Institute of Hydraulic Engineering at the Polish Academy of Sciences (Instytut Budownictwa Wodnego PAN), Gdansk.

"Are the Shipwreck Migrations and the Drift Isle Displacements Conclusive as to the Existence of Sea Currents?"

Warsaw, Bulletin de l'Academie Polonaise des Sciences, Serie des Sciences Techniques Vol X, No 12, 1962; pp 79-84.

**Abstract** [English article; author's Russian summary]. The author subjects to critical scrutiny the accepted thesis, that movements of shipwrecks, wooden rafts and floating islands prove the existence of sea currents. On the basis of laboratory research and analysis of forces in undulating water, it appears that waves too have a very significant effect on those movements. Five bibliographic references are listed: two Polish, two Russian and one French.

**POLAND**

KARWOWSKI J., Institute of Hydraulic Engineering at the Polish Academy of Sciences (Instytut Budownictwa Wodnego PAN), Gdansk.

"Floats Indicating Opposite Directions Of Current".

Warsaw, Bulletin de l'Academie Polonaise des Sciences, Serie des Sciences Techniques Vol X, No 12, 1962, pp 85-87.

**Abstract** English article; author's Russian summary, modified: The article describes laboratory experiments which were carried out to show the importance of the shape of floats in measurements. The results indicate, that the direction and velocity of float movement depend on the wave parameters, wave direction and on the shape of the float. The float movement in undulating water does not provide sufficient evidence for the existence of surface sea currents. One bibliographic reference is listed: it is Polish, by the same author.

2/1

**POLAND**

DOROSZKIEWICZ R.S., Department of Mechanics of Continuous Media, Institute of Fundamental Technical Problems at the Polish Academy of Sciences (Zaklad Mechaniki Cieklych Ciaglych, Instytut Podstawowych Problemow Techniki, PAN).

"Some Methods for Determining the State of Stress in Bodies Subjected Simultaneously to Their Own Weight and to Hydrostatic Pressure".

Warsaw, Bulletin de l'Academie Polonaise des Sciences, Serie des Sciences Techniques Vol X, No 12, 1962, pp 25-28.

**Abstract** English article; author's Russian summary, modified: The article presents two new methods for determining the stress distribution in the most severe case of simultaneous action of two loads: weight and hydrostatic pressure. These photoelastic methods are more accurate and shorter than the known superposition methods; the isochromatic and isoclinic line pattern is obtained directly. The first of these two methods is based on a special loading device which can reduce the hydrostatic pressure to a required value. The second of these methods utilizes "frozen" stress images and was developed in the 172

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Warsaw. Bulletin de l'Academie Polonaise des Sciences. Serie des Sciences Techniques Vol X, No 12, 1962; pp 25-28.

Soviet Union by G.L. CHESIN. Both methods have been successfully applied to the design of dams, locks, tanks, silos, retaining walls, bridge piers and icebreakers with the use of various types of models.

Three bibliographic references are listed: all Polish (one from symposium held in India).

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